

# Instructional supervision and assessment in the 21<sup>st</sup>-century and beyond

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**Abstract:** *The 21st century educational landscape has changed the way schools undertake instructional supervision and assessment. Technological developments paved the way for a shift in skills requirements from learners which is termed as 21st century skills. This study utilized a comprehensive literature review to investigate the current issues and concerns in instructional supervision and assessment. It also determined conditions that would make these processes effective vis-à-vis the needs of the current times. The study showed that there is a need for a collaborative and trust-based type of supervision. There should be regularity, continuity, and quality in supervision with a provision for adequate funding and capacity building. For instructional assessment, a HOTS-based assessment is appropriate to the current times. An online or e-assessment should also be considered.*

**Keywords:** *Instructional supervision, instructional assessment, comprehensive literature review*

## INTRODUCTION

The education landscape has been radically changed considering digital and technological advancements in the twenty-first century. The world has gradually moved from the first industrial revolution in the eighteenth century to industrial revolution 4.0 which focused on the use of artificial intelligence, big data, and the internet of things. Furthermore, the COVID-19 pandemic has accelerated the move towards industrial revolution 5.0 where there is an emphasis on “re-connection of innovation to flourishing humanity” (5<sup>th</sup> Element Group, PBC cited in Gauri, 2019) and a “deep, multi-level cooperation between people and machine” (Regensys Business School, 2020). More than ever, the role of educational institutions vis-à-vis these developments have become more pivotal.

Today, educational institutions are expected to produce graduates that possess the twenty-first-century skills which refer to the core competencies of collaboration, critical thinking, digital literacy, and problem-solving. As such, educational institutions need to create an academic environment that will foster the development of these competencies in students. This entails more than the improvement of physical and information technology infrastructure but also the competencies of the workforce, its teachers. The teacher is among the most dominant variables that affect student

outcomes, thus, to improve the achievement of students, it is important to improve the competence of teachers and one of the significant mechanisms in achieving this is through an instructional supervision program (Maisyaroh, Hardika, Valdez, Solaiman & Canapi, 2018).

Ebele and Ofu (2017) assert that “the standard of education of a nation can hardly be better than the standard of its supervisory process/system.” With this, they concluded that the educational system in a country reflects the level and standard of school supervision being undertaken. The Programme for International Student Assessment (PISA), a global study by the Organization for Economic Cooperation and Development (OECD), is currently one of the mechanisms that measure educational systems. The assessment determines the ability of learners, aged 15, to utilize their knowledge and skills in mathematics, science, and reading to address challenges in the real life. In the 2018 PISA results released in December 2019, the Philippines ranked the lowest in reading, while in Science and Math, the country ranked second to the last. This is in comparison with 79 other high- and middle-income countries. Orbeta, Melad, and Potestad (2020), in their study on the correlates of test performance of 15-year-old students in the Philippines as evidenced in PISA, averred that the PISA results confirmed the “unexpressed suspicion that there is a long-standing problem of quality of education in the country”.

The Department of Education defines instructional supervision as a professional, ongoing, and collaborative process for improving instruction. It consists of guidance, assistance, idea sharing, facilitation, or creation to assist teachers in improving the learning situation and quality of learning in schools. Under this program, a supervisor or instructional leader who possesses superior knowledge and skills and works collaboratively in a school environment that fosters the development of a professional learning community extends a helping hand to a professional colleague.

Instructional supervision is an important tool for schools as it helps them in ensuring that their vision and mission are achieved by supervising, training, and empowering teachers so that they can create valuable experiences for their students. It is a form of educational supervision undertaken to achieve the following objectives (Jared, 2011): (1) to provide objective feedback to teachers; (2) to diagnose and solve teaching problems; (3) to help teachers develop their strategies and skills; (4) to evaluate teachers for promotions or appointments; and (5) to help teachers maintain a positive attitude.

Instructional supervision, when undertaken by the principal, focuses primarily on helping teachers reflect on their actions and promoting school improvement through professional development (Sergiovanni & Starratt cited in Chen, 2018). On the other hand, general instructional supervision is school-based and is undertaken by relevant staff such as inspectors, teachers, principals, and administrators in schools to provide support, supervision, and continuity assessment for the professional development of teachers and the improvement of their teaching process. Instructional supervision heightens the professional knowledge of teachers and promotes the effectiveness of the teaching strategies they implement. Being the main stakeholders in the implementation of the curriculum, teachers should be involved in the strategic planning of the instructional supervision program. If teachers view supervision as something done to them and for them but not with them, its potential to improve schools cannot be fully realized (Chen, 2018).

The principal plays an important role in instructional supervision. Glickman, Gordon, and Ross-Gordon (cited in Chen, 2018) developed a framework of instructional supervision where they set out the five supervisory tasks of the principal that includes action research, direct assistance, group development, curriculum development, and professional development. In this framework, instructional supervision is viewed as a mechanism to enable teachers to improve instruction provided to

students including relationships which is aimed to meet both personal and organizational needs.

A critical part of instructional supervision is instructional assessment. It is important that the school can strategically evaluate how effective teachers are in meeting learning objectives as manifested in student outcomes. This allows the school to institutionalize effective teaching strategies and revise ineffective ones.

Instructional assessment is a process of data collection rather than an assessment instrument. Rosenfield (cited in Instructional Assessment Consideration Packet, 2015) defines instructional assessment as “a form of curriculum-based assessment (CBA) that is designed to assess the instructional needs of individual students to create the conditions necessary to optimize and maintain learning.” The purpose of instructional assessment includes ensuring a match between what the student knows and what the teacher teaches, providing correct feedback, and monitoring feedback (Gravois & Gickling, 2002).

Davis (2012) asserts that the term instructional assessment is an ambiguous term. He said that the term refers to either the assessment of the instructor, the assessment of the instruction specifies the content, course presentation, assignments, and grading, or assessment of the outcome of the instruction. Pilcher (n.d) notes that instructional assessment is a reflective activity that does not only sum up the evaluation of student performance or the assignment of grade but should serve as a basis to inform instruction.

Instructional supervision and assessment are part and parcel of educational management. In the Philippine setting, standards and guidelines for these processes are set under the Philippine Professional Standards for Teachers (PPST), Philippine Professional Standards for School Heads (PPSH), and Philippine Standards for Supervisors (PPSS).

However, as the educational landscape has changed, these educational management tools should adapt to these changes. This paper investigated the different issues being faced currently by schools in instructional supervision. Specifically, it shall study how instructional supervision has changed vis-à-vis the change in the educational landscape. It shall also investigate instructional assessment, being part of the process of institutional supervision, focusing on the assessment of students' learning in the 21<sup>st</sup> century and beyond. Finally, it will determine the effectiveness of these mechanisms in improving student outcomes vis-à-vis the current and future educational landscape.

## **METHODOLOGY**

This paper utilized a comprehensive literature review (CLR) as its methodology. It utilized articles

and papers published within the last three (3) years in refereed education journals that are available online.

Onwuegbuzie & Frels (2016) describe CLR as a synthesis of quantitative findings stemming from quantitative research studies and qualitative findings stemming from qualitative research studies. Since quantitative and qualitative findings will be synthesized within this CLR, the study can be classified as a mixed research study (Onwuegbuzie & Frels, 2016).

The CLR method has seven steps, namely: 1) Exploring Beliefs and Topics, 2) Initiating the Search, 3) Storing and Organizing Information, 4) Selecting / Deselecting Information, 5) Expanding the Search to Include One or More MODES (Media, Observation (s), Documents, Expert (s), Secondary Data), 6) Analyzing and Synthesizing Information, and 7) Presenting the CLR Report.

Through a comprehensive literature review, the study hopes to gather and synthesize insights from various sources on instructional supervision and assessment of students in this current century and beyond.

## DISCUSSION

**Instructional Supervision.** The changes today driven by development in information and communication technology have also modernized the learning process. Nababan, Ardani, and Purba (2020) assert that for teachers to continue to play a role in the era of 21st-century society, they must be able to transform themselves. One of the challenges they noted for the 21<sup>st</sup> century for teachers is that they must be able to cope with technological developments. Specifically, they said that teachers must be able to disseminate their knowledge in the form of electronic books or interactive, engaging, and high-quality animations so that their students can access it.

Principals, on the other hand, must have the capacity to lead teachers and institute school programs that would enhance creativity and innovation so that teachers can adapt to the digital age. Sulisworo (2016) differentiated 21st-century teachers and traditional teachers in that the former must be able to shift the paradigm of learning from teacher-centered learning, towards student-centered learning.

According to the Inside Book of Professional Teachers (cited in Nababan, Ardani & Purba, 2020), the integration of ICT in real learning must enable the learning process that is:

- a. Active: allows the active involvement of students through the existence of interesting and meaningful learning processes.
- b. Constructive: allows students to integrate novel ideas into prior knowledge to comprehend the

meaning, satisfy their curiosity and clarify the doubts in their minds.

c. Collaborative: allows students in a group to work together.

d. Enthusiastic: allows students to strive actively and enthusiastically to achieve the desired goals.

e. Dialogical: allows students' learning process to interact with each other both inside and outside the classroom.

f. Contextual: allows learning situations in a meaningful learning process.

g. High-order thinking skills training makes it possible to practice higher-order thinking skills.

To produce 21<sup>st</sup>-century teachers, the schools then must be able to adapt instructional supervision and assessment along this line. In the words of Udeozor (2004), "the extent to which the school's objectives are meaningfully realized depends on the ability and the capacity of the school to sincerely utilize teachers' supervision to pave the way for effective teaching-learning process, enhance teachers' performance and meet the felt needs and interest of the learners."

Against this background, the literature review showed several issues in instructions supervision noted by some authors.

Ebele and Olofu (2017) noted the issue on the conduct of regularity, continuity, and quality on the conduct of the supervision because of the limited number of supervisors vis-à-vis the schools or teachers they have to visit. Aside from the limited number, another limitation is the focus that supervisors give to supervision considering that they have other duties that they need to attend to.

The findings of Allida, Ollela, Ogwari, and Minka (2018) confirm Ebele and Olufu's. They posed that instructional supervision entails that the principal should conduct a "closer, periodic and continual internal supervisory practice" so that the school meets its objectives. In addition, they said that supervision that is "intermittent, lethargic and indifferent" only poses an obstacle in improving the instruction which supervision is geared towards.

Allida, Ollela, Ogwari, and Minka (2018) also emphasized the importance of establishing mutual trust with the teachers and a positive learning environment to ensure that the process of instructional supervision becomes successful. According to Maisyaroh, Hardika, Valdez, Solaiman, and Canapi (2018), in the process of implementing supervision, it is necessary to adhere to several principles which include being constructive, democratic, creative, innovative, objective, professional, and purposeful. They said that supervisors should not only strive to look for errors but

also provide enough support to improve or increase teacher competence.

Enaigbe (2019) noted several factors that limit effective and efficient supervision of secondary education in the 21st century in the context of the Nigerian educational system. These are a paucity of funds, political instability, shortage of skilled and experienced personnel, inadequate timing, and inadequate facilities. Suleiman, Ijaya, Ishola, and Joshua (2020) recommended the following measures for effective supervision include providing adequate funding, the institutionalization of professional accountability, and establishing capacity building.

A study by Glanz (2018) chronicled the views of eight prominent professors of supervision regarding the state of instructional supervision. The study aimed to answer three questions which are: (1) How have supervisory practices changed since your early work in the field?; (2) What is your sense of the national move towards high-stakes accountability with particular reflection upon its impact on school supervision? and (3) What does the future hold for instructional supervision as a field of study and practice?.

The above qualitative study came up with three themes namely: (1) Supervision is collaborative, non-judgmental, and supportive of teachers developing reflective practices to improve instruction; (2) the high-stakes accountability movement is antithetical to the aim of quality supervision, and yet also led to the emergence of supervision as instructional leadership; and (3) Scholars were cautiously optimistic about the state of future of supervision, however more research on supervision is needed.

In Glanz's discussion, he provided his analysis that the scholars that he interviewed had this common view that there is a distinct shift of instructional supervision from an autocratic to a more democratic approach which means that supervision is more development rather than an evaluative function. He added that in terms of the impact of accountability on supervision, the more senior scholars posed that with the introduction of the idea of accountability in education, the environment became favorable to "fostering a continuation of inspectional, judgmental supervisory practices". Other scholars who took part in the study averred that the desire to improve teaching practices is due to the objective to promote student achievement. Glanz also noted the findings in his interviews that even if there is the interest in supervision has been revived due to the rubric of instructional leadership, there is still a gap in terms of the conduct of ongoing and consistent research.

The paper by Allida, Ollela, Ogwari and Minka (2018) discussed some of the best practices in instructional supervision with a sharp focus on the

knowledge and skills that a 21st-century instructional leader is in dire need of. The study covered five (5) Adventists schools. These practices include the following:

- Class observations are done monthly, termly, and in some schools only when there is a need.
- Some schools monitor instruction through lesson monitoring tools and syllabus coverage monitoring tools.
- In three of the five schools, instructional supervisors conduct impromptu visits.
- The teacher is always invited for a session where the strengths, weaknesses, and emergent issues are discussed prayerfully after the observation. In a station, the outcome is presented in a staff brief or staff meeting
- The majority of the supervisors allow for democratic sharing in an attempt to solve instructional challenges.
- Most of the schools have assumed co-teaching, demonstrative teaching, and provision of instructional materials as a means of solving instructional needs.

Allida, Ollela, Ogwari, and Minka (2018) emphasized the need for regular classroom observation which they said should not be done only when there is a need. This aligns with the conclusions of Ebele and Olufu's as earlier noted. The study also concluded that there is a need to undertake training programs intended to enhance the practices of principals and teachers on effective and contemporary instructional supervision. This last conclusion is in line with one of the recommendations of Suleiman, Ijaya, Ishola, and Joshua (2020) earlier cited.

The study by Ghamrawi, Ghamrawi, and Shal (2019) takes on the topic of differentiated education supervision in schools through the lens of teachers. In introducing the topic of differentiated education supervision, they said that because schools are challenged to deliver according to the demands of 21<sup>st</sup>-century education, the teachers also need to grow and develop. However, they asserted that this can only be done when the needs of the teachers are also met. Glickman (2009) as cited in their study asserts that the same way instruction should be differentiated for students, education supervision needs to be differentiated to teachers as well since they have varied needs, abilities, interests.

The study enumerated the four types of differentiated supervision given by Glickman wherein the roles of both the teacher and supervisor vary. This includes directive supervision which is a supervisor-owned plan; directive informational supervision which

is a supervisor-suggestive plan; collaborative supervision which is a supervisor-teacher mutual plan and; non-directive supervision or teacher self-plan. The various types of differentiated supervision apply to teachers depending on their teaching maturity or experience.

The study of Ghamrawi, Ghamrawi, and Shal (2019) found out that directive control and directive informational approaches in educational supervision are the predominant approaches. The study showed that collaborative and non-directive approaches to education supervision do not seem to be quite popular. According to the authors, the result is quite alarming because this shows that the participation of teachers in educational supervision is low. According to Chien-Chin (2018) cited in the present study, for education supervision to be effective, it needs to be differentiated and individualized to meet the needs of teachers.

The study by Ebele and Olofu (2017) on enhancing the standard of teaching and learning in the 21st century via qualitative school-based supervision in secondary schools in the Abuja municipal area council found that school-based supervision significantly enhanced teachers' performance in secondary school. In addition, it also concluded that school-based supervision enhanced significantly the students' academic performance. Based on the findings, the authors recommended the improvement of the quality of school-based supervision in secondary schools towards the promotion of quality in teaching and learning.

**Instructional Assessment.** Educational systems of today are shifting away from the more traditional teaching-learning processes. Jacobs (cited in Price, Pierson, and Light, 2011) claimed that 21<sup>st</sup>-century teaching practices should come hand in hand with updating teachers' assessment strategies.

In an earlier paper by Price, Pierson, and Light (2011) on using classroom assessment to promote 21<sup>st</sup>-century learning in emerging market countries, six assessment strategies were recommended to be used as part of 21<sup>st</sup>-century learning. These are 1) Rubrics, 2) Performance-based assessments (PBAs), 3) Portfolios, 4) Student self-assessment, 5) peer-assessment, 6) Student response systems (SRS).

According to their paper, classroom assessments should have three important traits. One is that the assessment should lead to an understanding of student learning to enable teachers to change their instructional strategies. Information gathered from the assessment strategies should be used to inform teachers' instructional decisions. Second, the assessment should be able to cover a broader spectrum of the students' skills and abilities. In contradiction to traditional assessment strategies which measures only

a low level of cognitive effort, assessment tools and strategies should be geared towards higher-order thinking skills (HOTS) and complex problem-solving abilities. The third trait is that the assessment should give new roles to students in the process of assessment such that it becomes a learning experience for them. This means that students should be involved in the assessment process as opposed to the traditional assessment that is designed, administered, and graded solely by the teacher.

Akib and Muhsin (2018) in their paper posed that teaching assessment based on Higher Order Thinking Skills (HOTS) is an appropriate model in 21<sup>st</sup>-century teaching. According to them, this type of assessment is designed to develop critical and creative thinking skills and the positive character of learners. This model is characterized in the paper as follows:

1. Assessment process integrated with ongoing teaching procedure.
2. The assessment process involved four elements sharing learning goals and success criteria, using effective questioning, self-assessment and self-reflection, and feedback.
3. The assessment process is purposed to increase and develop HOTS, attitude, and positive character and improve the quality of teaching.
4. The assessment process focused on skills in applying, analyzing, evaluating, and creating to help students in critical thinking, logical reason, analytic and systemic, problem-solving, making a decision, and creating something not only remembering the subjects.
5. Teachers can give problems to the students for discussion material and problem-solving to help their thinking activity.
6. Assessment activity can be done with some activities like discussion, field activity, practical work report and the students asked to evaluate their self-activity.
7. The assessment can improve the students' motivation.
8. Assessment activity involves the students doing self-assessment and self-reflection to measure their material mastery.
9. Assessment activity can give corrective feedback to the students.

The HOTS-based assessment model espoused by Akib and Muhsin (2018) corresponds to the three important traits provided by Price, Pierson, and Light (2011) cited above.

In a 2014 paper by Pellegrino, he argued that assessment can help attain the learning goals of the twenty-first century. He noted that with the changes in work and of society, the premium is placed not only on the acquisition of knowledge by students but also on

their ability for analysis, synthesis, and application of their learnings to solve current problems, collaborate, and communicate effectively and persuasively. He outlined in his paper the indicators of quality in a “system of next-generation assessments”. This includes (1) assessment of higher-order thinking skills; (2) high-fidelity assessments of critical abilities; (3) standards that are internationally benchmarked; (4) items that are instructional sensitive and educationally valuable and (5) assessments that are valid, reliable, and fair.

Khairil and Mokshein (2018), on the other hand, pushed for online assessment or e-assessment. They posed that technology-based assessment should be considered instead of the traditional pen and paper assessment to the requirement for 21<sup>st</sup>-century skills. In the paper, examples of well-known assessment tools were given that include e-portfolios, game-based assessments, and computer-based assessments. The advantages of online assessment were also given such as auto marking, quality feedback, and discussion, reliable and valid instrument, economical and environmentally friendly. Online assessment is also considered practical because it can be undertaken anytime by the students and the teacher will receive a faster response. The study also asserts that online assessment can motivate students because it provides a modern setting that is different from traditional assessment.

## CONCLUSIONS AND RECOMMENDATIONS

With the changes in the educational landscape brought about by technological advancements and the ensuing change in terms of workforce requirements in the market, the need to adapt the teaching-learning inputs and processes has become apparent. Vis-à-vis the 21<sup>st</sup>-century skills that learners are expected to acquire, teachers are also expected to develop and transform attuned to the needs of the times. As such, schools are also expected to assist teachers in their development. One of the primary ways to do so is to institute a relevant and effective instructional supervision and assessment program.

The comprehensive literature shows the issues being faced by schools in terms of instructional supervision and assessment. The first is the alignment of instructional supervision and assessment with 21<sup>st</sup>-century learning. Ghamrawi, Ghamrawi, and Shal (2019) called for differentiated and individualized educational supervision. Maisyaroh, Hardika, Valdez,

Solaiman, and Canapi (2018), on the other hand, recommended a more collaborative and trust-based type of instructional supervision gearing away from the autocratic type to more democratic approaches (Glanz, 2018).

There is also the common issue of regularity, continuity, and quality in instructional supervision. For this, Ebele and Olofu (2017) and Allida, Ollela, Ogwari, and Minka (2018) recommended more periodic and regular supervision, one that is not undertaken merely because of a felt need. Finally, there is also an emphasis on the provision of adequate funding and capacity building for both teachers and principals.

On other hand, instructional assessment in the 21<sup>st</sup> century based on the literature entails a framework based on higher-order thinking skills (Akib & Muhsin, 2018) which is designed to develop critical and creative thinking skills and positive character of learners. This is an affirmation of the three important traits of assessment set forth by Price, Pierson, and Light (2011) which requires that assessment provide insight into student learning so teachers can modify instruction, assess a broader range of skills and abilities, and give students new roles in the assessment process that make assessment a learning experience. This also aligns with Pellegrino's quality indicators for next-generation assessments. Finally, Khairil and Mokshein (2018) advocated for online assessment or e-assessment to meet the demands of 21<sup>st</sup>-century skills.

The primary objective for instructional supervision and assessment whether in the 21<sup>st</sup> century or beyond is the attainment of the school's vision, mission, goals, and objectives. As Udeozor (2004) said, cited earlier, the extent to these objectives are meaningfully realized depends on the ability and the capacity of the school to sincerely utilize teachers' supervision to pave the way for effective teaching-learning process, enhance teachers' performance and meet the felt needs and interest of the learners.

In sum, the related issues and concerns in instructional supervision and assessment faced by schools today are different. Thus, these educational strategies must be adapted to the changing educational landscape to ensure that

schools are producing graduates with the 21<sup>st</sup>-century skills they need to thrive and compete in the current environment. In essence, the study showed that there is a need for a collaborative and trust-based type of supervision. There should be regularity, continuity, and quality in supervision with a provision for adequate funding and capacity building. For instructional assessment, a HOTS-based assessment is appropriate to the current times. An online or e-assessment should also be considered.

## REFERENCES

- Akib, E. & Muhsin M. (2019). *Journal of Physics Conference Series* 1179 (2019) 012065. doi:10.1088/1742-6596/1179/1/012065. Retrieved from <https://iopscience.iop.org/article/10.1088/1742-6596/1179/1/012065/pdf>
- Allida, V., Olela M., Ogwari P. & Minia, O. (2018). Best Practices in Instructional Supervision: A Study of Adventist Secondary Schools in Ranen Conference. *Baraton Interdisciplinary Research Journal* (2018), 8(Special Issue), pp 1-7. Retrieved from <https://www.ueab.ac.ke/wp-content/uploads/2019/04/Vencie-Michael-Peter-Onesmo.pdf>
- Chen, C. (2018). Facilitation of Teachers' Professional Development through Principal's Instructional Supervision and Teacher's Knowledge Management Behaviors. Doi: 10.5772/intechopen.77978. Retrieved from <https://www.intechopen.com/chapters/61746>
- Davis, M. (2013) Instructional Assessment in the Classroom: Objectives, Methods, and Outcomes. *Practical Guidance on Science and Engineering Ethics Education for Instructors and Administrators: Papers and Summary from a Workshop December 12, 2012*. Retrieved from <https://www.nap.edu/read/18519/chapter/8>
- Department of Education Instructional Supervision: Standards, Procedures, and Tools Handbook
- Ebele, U. & Olufu P. (2017). Enhancing the standard of teaching and learning in the 21st century via qualitative school-based supervision in secondary schools in Abuja municipal area council (AMAC). *International Journal of Educational Administration and Policy Studies*. Vol.9(6), pp. 79-83,
- Gauri, P. (2019). How the 5th Industrial Revolution Brings the Focus Back to Humanity. Retrieved from <https://thriveglobal.in/stories/how-the-5th-industrial-revolution-brings-the-focus-back-to-humanity/>
- Ghamrawi N., Ghamrawi N. & Shal T. (2019). Differentiated Education Supervision Approaches in Schools through the Lens of Teachers International Journal for Innovation Education and Research. Retrieved from <https://ijer.net/ijer/article/view/2011>
- Glanz, J. (2018). Chronicling Perspectives about the State of Instructional Supervision by Eight Prominent Scholars of Supervision *Journal of Educational Supervision* 1 – 17 Volume 1, Issue 1, DOI: <https://doi.org/10.31045/jes.1.1.1>. Retrieved from <https://digitalcommons.library.umaine.edu/jes/JeffreyGlanz1>
- Gravois, T., & Gickling, E. (2002). Best practices in curriculum-based assessment. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology*, (pp.1-13). Washington, DC: National Association of School Psychologists.
- Jared. NB. (2011). Influence of Head Teachers' General and Instructional Supervisory Practices on Teachers' Work Performance in Secondary Schools in Entebbe Municipality [Internet]. Retrieved from <https://eric.ed.gov/?id=ED527043>
- Maisyaroh, B., Hardika, A., Mangorsi, S. & Canapi, S. | Kar-wai Tong (Reviewing editor) (2021). The implementation of instructional supervision in Indonesia and the Philippines, and its effect on the variation of teacher learning models and materials, *Cogent Education*, 8:1, DOI: [10.1080/2331186X.2021.1962232](https://doi.org/10.1080/2331186X.2021.1962232). Retrieved from <https://www.tandfonline.com/action/showCitFormats?doi=10.1080%2F2331186X.2021.1962232>

- Nababan T., Ardani S., & Purba, S. (2019). Educational Supervision to Increase Teacher Professionalism in The 21st Century Learning Era. Presented during the 2<sup>nd</sup> International Conference of Science Education in Industrial Revolution 4.0, December 17, 2019. Retrieved from <https://eudl.eu/doi/10.4108/eai.17-12-2019.2296009>
- Onwuegbuzie, A.J. & Frels R. (2016) Seven Steps to a Comprehensive Literature Review: A Multimodal and Cultural Approach. South Florida: Sage Publishing.
- Orbeta A., Melad K. & Potestad, M. (2020). Correlates of Test Performance of 15-year Old Students in the Philippines: Evidence from PISA. Philippine Institute for Development Studies. Discussion Paper Series No. 2020-57
- Pellegrino, J. (2014). Assessment as a Positive Influence on 21st Century Teaching and Learning: A Systems Approach to Progress. *Psicología Educativa*. Retrieved from <https://www.sciencedirect.com/science/article/pii/S1135755X14000128>
- Pilcher, K. (n.d.) The Role of Instructional Assessment and Teacher Assessment Practices. The University of West Florida. Retrieved from <http://www.nationalforum.com/Electronic%20Journal%20Volumes/Pilcher,%20Janet%20K.%20The%20Role%20of%20Instructional%20Assessment%20and%20Teacher%20Assessment%20Practices.pdf>
- Price J., Pierson E. & Light D. (2011). Using Classroom Assessment to Promote 21st Century Learning in Emerging Market Countries. Paper presented at Global Learn Asia Pacific 2011, Melbourne, Australia. Retrieved from <http://cct.edc.org/sites/cct.edc.org/files/publications/Using%20Classroom%20Assessment.pdf>
- Regenesys Business School (2020). The Fifth Industrial Revolution (5IR) and How it Will Change the Business Landscape. Retrieved from <https://insights.regenesys.net/the-fifth-industrial-revolution-5ir/>
- Sergiovanni, T.J. & Starratt R.J. (2007). *Supervision: A Redefinition*. New York, NY: McGraw-Hill
- Sulisworo, D. (2016). The Contribution of the Education System Quality to Improve the Nation's Competitiveness of Indonesia. *Journal of Education and Learning (EduLearn)*, 10(2), pp.127-138.
- Udeozor, R. (2004). *Educational Administration: Perspectives and Practical Implications*. Nimo: Rex Charles and Patrick Ltd.
- William & Mary (2015). *Instructional Assessment Considerations Package*. Retrieved from <https://education.wm.edu/centers/ttac/documents/packets/ia.pdf>